Technical Publications
Litho U.S.A.

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Dallas, Texas, USA

505,289M
08/2007
Supersedes 02/2007
KAZ # C.6046

HCWB2 & HCWP2 SERIES

USER'S MANUAL FOR HCWB2 AND HCWP2 HUMIDIFIERS

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RETAIN THESE INSTRUCTIONS FOR FUTURE REFERENCE

Introduction

This manual includes information that will familiarize you with your humidifier. It also details routine maintenance required to keep the humidifier working properly.

⚠ WARNING

Electric shock hazard. Can cause injury or death. Disconnect all electrical power supplies before servicing. Shut off water supply before disconnecting or tapping into any water supply line.

⚠ CAUTION

Risk of Equipment Damage. After humidifier installation is completed, turn water supply back on.

Humidifier Operation

This humidifier provides the proper relative humidity (RH) during the heating season. The humidifier is wired to operate when the indoor blower motor is on during the heating mode and the indoor RH is below the selected comfort level. During a call for humidity, water flows into the EquaFlo™ distribution tray, where it is distributed evenly across the width of the pan. The humidifier pad is saturated with water. Dry hot air moves through the pad where evaporation takes place. The humidified air carries moisture in vapor form throughout the home.

⚠ CAUTION

Risk of Equipment Damage. Do not use the saddle valve to regulate water flow. The valve is designed to be completely opened or closed.

During humidifier operation, a steady stream of water flows to the drain. This water flushes away minerals and other particles of solid residue. Some particles are trapped by the humidifier pad. This eliminates the “white dust” which is often mentioned in complaints about other systems. The water flow and drain design also eliminate problems caused by stagnant water.

The humidifier pad must be in good condition to assure trouble-free performance. It should be changed at least annually.

All humidifier parts that come in contact with water are non-metal and will never rust or corrode. Neither heat nor water will affect the humidifier components under normal operating conditions.

HCWB2-12 and -17 and HCWP2-18 Operating Instructions

HCWB2-12 and -17 and HCWP2-18 humidifiers are controlled by a manual humidistat, which is installed either in the living area or on the return air plenum.

It is important to keep the humidistat setting at the recommended level in order to avoid excessive indoor RH. This will prevent the formation of condensation on inside windows (fogging or frost on windows). For example, with an outside temperature of 20ºF the correct setting will be 35% RH. If the temperature is expected to fall to 0ºF that evening, then adjust the setting to 25% several hours prior to the temperature change.

The manual humidistat can be used to determine the RH in your home during the winter. Turn the dial to the lowest setting, then reverse the dial direction slowly until you hear the solenoid valve click on. At this point, read the RH value on the dial. This will be very close to the actual RH in your home.

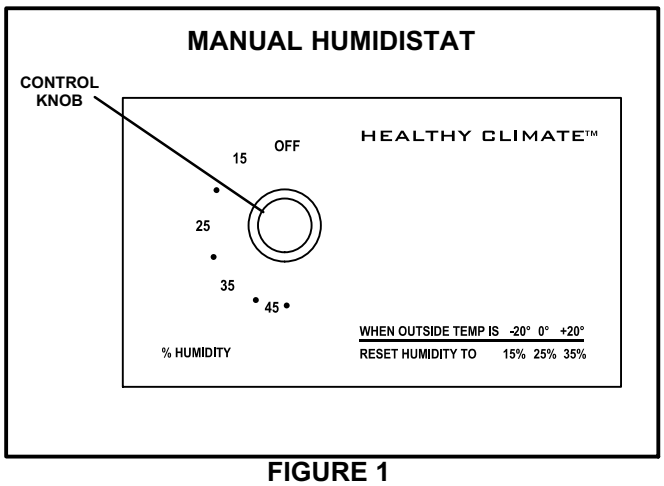

FIGURE 1

TABLE 1
Relative Humidity (RH) Settings

Outside Temperature (Fahrenheit)	Recommended RH
+40°	45%
+30°	40%
+20°	35%
+10°	30%
0°	25%
–10°	20%
–20°	15%

To check the humidifier operation, set the humidistat above the click point, make sure that the water saddle valve is open and that there is power to the unit. The furnace blower motor must be operating for the humidifier to function. After the humidifier has operated for several minutes and water is entering the unit and coming out at the drain, reduce the humidistat setting below the click point and the unit should automatically shut off. Now, set the humidistat dial at the recommended inside RH, depending on the outside temperature. It is important to anticipate changes in the outdoor temperature and to adjust the setpoint prior to a drop in the outside temperature.

Be sure to keep fireplace dampers closed when not in use. Chimneys provide an excellent escape route for heat, as well as humidity.

HCWB2-12A and -17A and HCWP2-18A Operating Instructions

HCWB2-12A and -17A and HCWP2-18A humidifiers are controlled by a universal humidifier control, which offers two modes of operation: automatic and manual. When installed in the automatic mode the system benefits you in the following ways:

1 - The control automatically adjusts your home’s RH based on the outdoor temperature.

2 - The control eliminates the need to manually adjust the control.

3 - The universal humidistat precisely controls the RH in your home, ensuring maximum comfort for a greater percentage of time. The universal humidistat also prevents excess condensation or low humidity in the home.

4 - The universal humidistat eliminates the need to turn the dial setting to **OFF** during the summer season.

Automatic Mode

Immediately after installation, the universal humidistat must be set to match your home’s condition. Follow these

steps to adjust the automatic humidifier control. See figure 2.

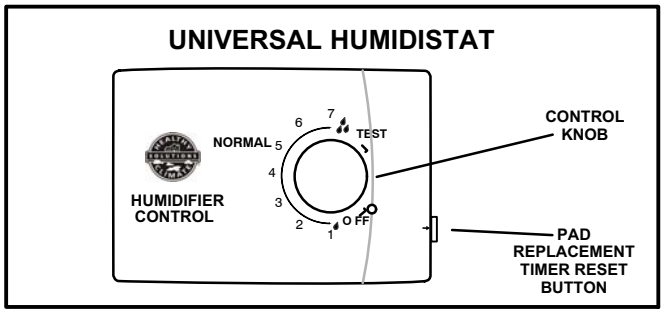

FIGURE 2

1 - Turn the knob to setting 5, which is within the normal range. During the next 24 to 48 hours, it may be necessary to adjust the dial for more or less humidity, depending on your personal comfort and the home's requirements. See table 2.

TABLE 2
Operation Guide

Condition	Solution
Condensation on windows.	Reduce the setting on the control dial by one increment at a time.
Lack of humidity.	Increase the setting on the control dial by one increment at a time.
Humidifier does not operate. (solenoid does not "click" when control is moved to **TEST** position.)	Make sure power is available to the solenoid valve. Turn dial to **TEST**. Make certain furnace blower is operating and furnace is calling for heat. If unit still does not operate, consult a heating contractor.
Humidifier won't shut off	Turn dial to **OFF**. If unit continues to operate, consult a heating contractor.
Test Mode	System operation is checked by setting the knob to **TEST**. Make certain that the furnace blower is operating and furnace is calling for heat. Humidifier will operate for one minute.

2 - During the coldest portion of the first heating season, minor adjustments may be necessary, depending on the home's construction. See table 2.

The RH in your home will be accurately controlled to meet your needs and should not need further adjustment during future heating seasons. Make note of the dial setting in the event the knob gets moved.

Your humidifier is part of a system that will accurately maintain the RH in your home. For every 1°F change in outdoor temperature, the universal humidistat will automatically adjust the indoor relative humidity by 0.5% RH. If you would like to determine the RH in your home, follow these steps:

1 - Determine the outdoor temperature.

2 - Activate the furnace blower by setting your thermostat fan switch to the **ON** position, or by setting your thermostat to a higher temperature.

3 - Turn the control dial setting to the **OFF** position. Then, slowly turn the dial clockwise until you hear the solenoid valve click on. Slowly turn the dial counterclockwise until you hear the solenoid valve click off. At this point, make note of the dial setting.

4 - Locate your dial setting on table 3. Follow the dial setting to the right until it intersects with the current outdoor temperature. This is the RH in your home under existing conditions.

5 - Return the thermostat and control to their original settings.

TABLE 3
Percentage Relative Humidity (RH)

Outdoor Temperature (°F)						
Dial Setting	**-10**	**0**	**10**	**20**	**30**	**40**
1	10	10	10	15	20	25
2	10	10	15	20	25	30
3	10	15	20	25	30	35
4	15	20	25	30	35	40
5	20	25	30	35	40	45
6	25	30	35	40	45	45
7	30	35	40	45	45	45

As an example, if the outdoor temperature is 20°F and, following step 3, the humidifier turns off at "5"on the dial range, then the RH in your home is 35%.

The universal humidistat will accurately control the humidity in your home to a maximum of 45% RH and a minimum of 10% RH. The values of outdoor temperature and dial settings may fall in between or outside of the listed values in table 3. In these cases, you will be able to approximate your home's actual indoor RH.

Manual Mode

If an outdoor temperature sensor has not been installed with your universal humidistat, the control is installed in the cold air return and is set for manual mode operation. In this case, it is important to keep the humidistat setting at the recommended level in order to avoid excessive indoor RH. This will prevent the formation of condensation on inside windows (fogging or frost on windows). For example, with an outside temperature of 20ºF the correct setting will be 35% RH. If the temperature is expected to fall to 0ºF that evening, then adjust the setting to provide 25% RH several hours prior to the temperature change.

The recommended settings noted on the sticker on the front of the control and in table 1 are based on years of research and experience. For example, a winter time indoor RH of 50% may be considered by you to be ideal for your personal comfort; however, this setting may result in damage to your home. Observance of the recommended RH levels on your humidistat, therefore, is an important safeguard. These settings represent a

compromise between RH levels that are desirable for comfort reasons and humidity levels, which will avoid condensation on your windows.

The humidistat can be used to accurately determine the RH in your home during the winter. With the furnace blower operating at the heating speed, turn the dial to the lowest setting, then reverse the dial direction slowly until you hear the solenoid valve click on. At this point, read the RH on the dial. This will be very close to the actual RH in your home. To check the humidifier operation, set the knob to **TEST**. Make sure that the water saddle valve is open and that there is electricity to the unit. Generally, the furnace blower motor must be operating for the humidifier to function. After the humidifier has operated for one minute and water is entering the unit and coming out at the drain, reduce the humidistat setting to the recommended inside RH, depending on the outside temperature. Do not leave in the control in the test mode. The humidifier will not operate properly in the test mode. Anticipate a drop in the outside temperature and lower the setting several hours before the drop in outdoor temperature occurs.

Water Characteristics

Your humidifier will operate effectively using either hard or mechanically softened water.

Any type of water (hard, soft, hot, or cold) is acceptable for use with the HCWB2 or HCWP2 humidifiers. Hot supply water (140°F maximum) is recommended for all heat pump applications. The use of hot supply water will also increase the unit's capacity.

⚠WARNING

Risk of Scalding. Water temperature over 125°F can cause severe burns and can scald instantly. Shut off the hot water supply before disconnecting or tapping into any hot water supply line.

Annual Maintenance

For best performance, you should replace the humidifier pad at least annually. Call your dealer for preventative maintenance and replacement components.

Annual Shutdown

For the summer humidifier shutdown, turn the universal humidistat or manual humidistat to the **OFF** setting (HCWB2-12, 17 and 17A and HCWP2-18 and -18A) and close the damper (HCWB2-12, -12A, -17 and 17A).

Maintenance

NOTE - Annual inspection and maintenance is important for efficient and safe operation of your humidifier. Call your dealer for humidifier service and maintenance inspection. Parts are available through your Lennox dealer.

Your humidifier is equipped with an in-line water strainer and orifice as shown. These parts should be inspected and cleaned periodically to assure continued proper unit performance. Inspect more often if "white dust" is evident.

SOLENOID VALVE COMPONENTS

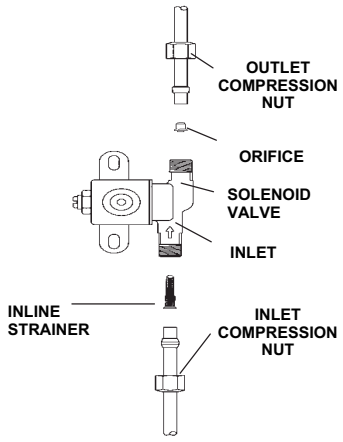

FIGURE 3

1 - Disconnect electrical power to the furnace and shut off water supply.
2 - Disconnect the water line at the inlet compression nut.
3 - Use a small nail or wire to remove the in-line strainer from inside the inlet side of the valve.
4 - Flush the in-line strainer clean or replace with a new strainer.
5 - Reinstall the in-line strainer and reconnect the inlet water line. Use the double-wrench technique to prevent leaking.
6 - Disconnect the water line at the outlet compression nut.
7 - Check the orifice to make sure the small opening is unplugged. Do not try to remove the orifice from the copper tube.
8 - Reinstall the orifice and reconnect the outlet water line. Use the double-wrench technique to prevent leaking.
9 - Check to ensure that the copper tube is inside the plastic sleeve.
10- Turn on water supply and reconnect electrical power to the furnace.
11- Allow the system to operate for a few minutes. Check for water leaks and re-tighten fittings, if necessary.

HCWB2 REQUIRED MAINTENANCE

Component identification for the following procedure is listed in figure 3.

⚠WARNING

Electric shock hazard. Can cause injury or death. Disconnect all electrical power supplies before servicing. Shut off water supply before disconnecting or tapping into any water supply line.

1 - Disconnect main power to furnace.

2 - Make a note of the humidistat setting and turn humidistat to the **OFF** position.

3 - Turn off water supply.

4 - Slide the plastic latch to release the humidifier cover. Swing the cover open, then lift it away from the assembly.

5 - Turn the damper handle to the “SUMMER” position. Grasp the tabs on the pad assembly frame and lift the assembly out of the humidifier cabinet.

6 - Unsnap the pad assembly from the tabs on the sides of the distribution tray. Remove the distribution tray from the pad assembly. Lightly scrape off any mineral deposits from the surface of the distribution tray.

7 - Slide the humidifier pad out of the frame. Twist and flex the frame to loosen the calcium deposits on the frame or use a putty knife to clean the frame. Replace the humidifier pad annually or more frequently if necessary. Slide the pad back into the frame with the black mark facing up. Snap the distribution tray back into place.

8 - Position the pad frame assembly so that the tabs are pointing outward. Align the drain extension on the pad assembly with the drain spud in the humidifier base. Reinsert the humidifier pad assembly in the base. Push the pad assembly in at the top until the assembly snaps into place. Replace the front cover. Turn the damper handle to the “WINTER” position.

9 - Remove the drain hose from the bottom of the humidifier. Bend and flex the hose to loosen any internal calcium deposits. Flush the hose with water under pressure and slip it back onto the drain spud. The drain hose should have a constant downward slope and must not be flattened or blocked.

10- Turn on water supply.

11- Check humidifier operation:

Manual Humidistat - Adjust humidistat to highest setting and make sure the furnace blower is operating. Humidifier will operate if RH is less than 50%.

Universal Humidistat - Check system operation by setting the knob to **TEST** position. With furnace blower operating and furnace calling for heat, humidifier will operate for one minute. Press the **RESET** button on the side of the control to reset the “Change Humidifier Pad” indicator.

12- Set manual humidistat or universal humidistat to its original position.

HCWB2 Humidifier Parts Identification

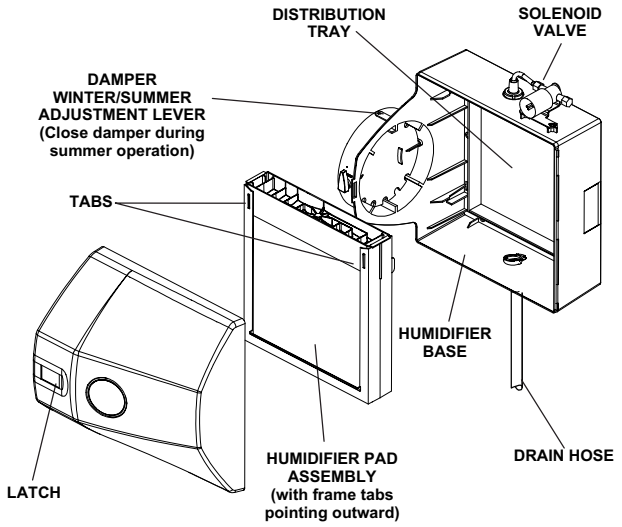

FIGURE 4

HCWP2 REQUIRED MAINTENANCE

Component identification for the following procedure is listed in Figure 4.

⚠WARNING

Electric shock hazard. Can cause injury or death. Disconnect all electrical power supplies before servicing. Shut off water supply before disconnecting or tapping into any water supply line.

1 - Disconnect main power to furnace.

2 - Make a note of the humidistat setting and turn humidistat to the **OFF** position.

3 - Disconnect electrical power and turn off water supply.

4 - Pull the tab to release the control harness. Disconnect the harness.

5 - Release the humidifier cover latch at the bottom of the humidifier assembly. Swing the cover open, then lift it away from the assembly.

6 - Grasp the tabs on the pad assembly frame and lift the assembly out of the humdifier cabinet.

7 - Unsnap the pad assembly from the tabs on the sides of the distribution tray. Remove the distribution tray from the pad assembly. Lightly scrape off any mineral deposits from the surface of the distribution tray.

8 - Slide the humidifier pad out of the frame. Twist and flex the frame to loosen the calcium deposits on the frame or use a putty knife to clean the frame. Replace the humidifier pad annually or more frequently if necessary. Slide the pad back into the frame with the black mark facing up. Snap the distribution tray back into place.

9 - Position the pad frame assembly so that the tabs are pointing outward. Align the drain extension on the pad assembly with the drain spud in the humidifier base. Reinsert the humidifier pad assembly in the base. Push the pad assembly in at the top until the assembly snaps into place.

10 - Remove the drain hose from the bottom of the humidifier. Bend and flex the hose to loosen the internal calcium deposits. Flush the hose with water under pressure and slip it back onto the drain spud. The drain hose should have a constant downward slope and must not be flattened or blocked.

11- Reinstall the front cover by hooking at the top of base assembly and latching at the bottom.

12- Reconnect the control harness. Make sure that the plug snaps into place.

13- Reconnect electrical power and turn on water supply.

14- Check humidifier operation:

Manual Humidistat - Adjust humidistat to highest setting and make sure the furnace blower is operating.

Universal Humidistat - Check system operation by setting the knob to **TEST**. With furnace blower operating and furnace calling for heat, humidifier will operate for one minute. Press the **RESET** button on the side of the control to reset the “Change Humidifier Pad” indicator.

13. Set manual humidistat or universal humidistat to its original position.

HCWP2 Humidifier Parts Identification

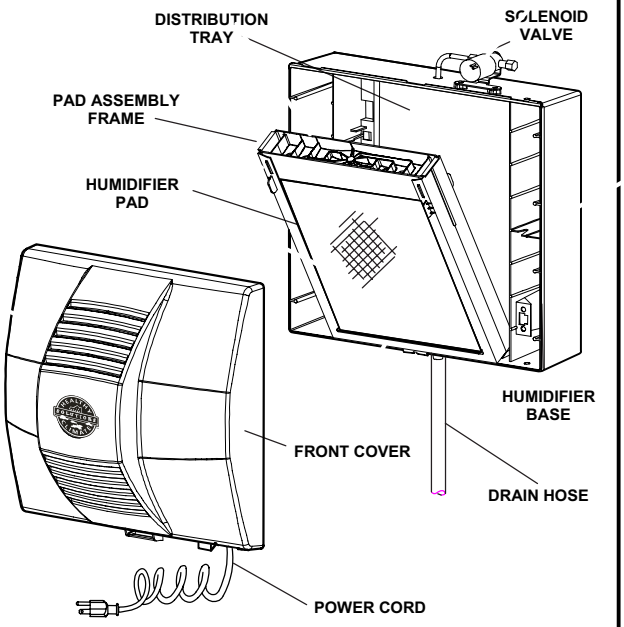

FIGURE 5